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Architect/Engineering

[FEDERAL A/E CONTRACT CONSIDERATIONS FOR
COMPUTER AIDED DESIGN]: CONSENSUS OR
CONTROVERSY -- OPENING STATEMENT

Addressee: First
International Conference
on Computing in Civil
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NY

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For those who have not had an opportunity to read the GAO report, let me briefly summarize our conclusions and recommendations. Based on our questionnaire survey of 754 firms and personal interviews with officials of 84 firms and 11 Federal agencies, we concluded that computer use on Federal projects is often limited or hampered by the actions of agency officials and agency procedures and practices. You'll notice I did not include policies. I do not believe policies are the problem; it is the interpretation of policy through procedures and practices that has created the problems A/E firms experience on Federal projects.

It was felt that an environment more conducive to greater, more efficient use of computer-aided methods was needed. We recommended that Federal agencies:

- educate their personnel about the capabilities and uses of computers in the design process,
- require computers for functions which can be done efficiently only with computers, such as energy analysis,
- evaluate computer expertise when selecting firms for design work,
- discuss computer use during negotiations, and
- revise fee proposal formats to (1) recognize the computer's role on the project, and (2) clearly identify the services to be performed under the contract.

The title of this session might lead you to believe that there is a great deal of controversy over the GAO report. Personally, I have not seen the alleged controversy. Granted two of the recommendations have met some minor opposition. However, even this is less than normal. All 11 agencies have agreed to educate their personnel, evaluate computer expertise, and discuss computer use in negotiations. Two agencies--GSA and VA--do not want to require computers for such things as energy analysis, and only the VA does not want to give up its preprinted fee proposal forms. Therefore, you can hardly call the situation on controversy. Many of the things you will no doubt hear today predate the GAO report by many years, and have little bearing on our recommendations.

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Some questions the need for the report. Some, especially Federal officials, claim there is no problem; firms are using computers. I agree computers are being used, but no where near their potential. Let me share with you the comments of just one firm that participated in the review. On our survey questionnaire, the firm wrote "Fee negotiations are structured so that extensive use of computers would be considered by the Contracting Officer to be wasteful and frivolous." When we visited the firm's offices this is what we were told. "The firm has very few problems with Government agencies regarding computer use because they do not use their computer expertise on Federal work, except for routine calculations. They do this to avoid the hassle and have adopted a "why fight it" attitude. They use their computer expertise extensively with private clients and foreign governments. They believe they do a better job with their computer and their relative position in their segment of the industry in their opinion proves they are correct. With a Federal agency they have to prove that they are right everytime and Federal officials believe everyone is out to cheat the Government."

These comments were not isolated. Similar comments were repeated over and over again. Furthermore, our discussions with agency official's tended to confirm what A/E firms said about the attitude of Federal negotiators about the use of computers in general, and their creative use in particular. In view of our position on the potential benefits from computer use, we were a bit concerned over the situation.

Throughout the conference, various speakers have talked about problems we discussed in our report. The keynote speaker emphasized the fact that computer use is not limited to the traditional analytical or numerical applications, but includes other applications such as information processing. Many Federal officials see the computer as only an analytical tool. Most of my fellow panelist will concentrate on the use of computers for analysis. Our discussion is much broader. Our report is not limited to the use of computers for analysis, nor is it limited to just the civil engineer. It includes all uses of computers in the design process and their use by all members of the design team.

One thing which bothers some Federal officials is how do they evaluate computer costs. We made it quite clear in the report that there is no simple standardized way to evaluate computer costs primarily because the pricing practices vary from firm to firm due to a variety of factors.

We suggested that computer pricing policies of Federal agencies should be flexible and permit those pricing practices endorsed by the ASCE, as long as the method used is the same as the firm uses for all its clients, both public and private.

Some have problems with our suggesting that computers be required. Let me explain our position. First, we believe that the A/E firm should decide how it is going to do the required design work on a Federal project. Nevertheless, we also feel that in view of Congressional pressure to reduce the energy consumption of Federal buildings,

it is necessary to require that the most efficient, most accurate methods be used. Second, although the A/E should have a fairly free hand to choose their own design methods, the agency also has an obligation and responsibility to assure that the A/E firm uses the right program, understands the program rather than simply subscribing to a computer service or trying to use a program for something for which it was not intended, and assumes full responsibility for the results of their analyses and for the decisions based on their analyses.

Our recommendation to evaluate computer expertise follows from the above. No assumptions should be made. Just because a firm has a computer, it does not necessarily follow that it can use this tool effectively. Also, discussions during negotiations hopefully would prevent some erroneous assumptions about the use of computer aids.

In closing, the preface in the preprint for this session lists several questions to consider as you listen to this discussion. My personal position is that the questions as written tend to be slanted towards the Federal agencies viewpoint. They also imply that GAO favors such things as software certification and massive changes to the Federal Procurement Regulations--which we do not. I believe rewording those questions provides another perspective, one which is probably of more interest to the private sector. I suggest you consider these questions.

- Do agency concerns about over-use, misuse, and user loss of control of a job justify inhibiting and discouraging the use of computer-aided design methods?
- Should computer capabilities, expertise, and experience be evaluated when selecting firms for Federal design work? Or, does this divert attention from more important issues and introduce a promotional factor to the selection process?
- Are there other factors relating to the computer and its role which were not addressed in the GAO report which have a bearing on the alleged shortcomings in the Federal Government's A/E services contracting process? Did GAO give adequate consideration to the opinions of Federal architects and engineers? Or, the opinions of private sector architects and engineers?
- What factors should be considered when evaluating fee proposals? Should computer-aided job needs be considered? Hardware/software potential? What costs should be allowed? Are there simple and equitable rules to evaluate these?
- Should firms be allowed to use only proven computer programs? Is certification of software necessary? (My personal position on these questions is no on both.)
- Are Federal agencies neglecting the computer as a design tool? Has the time arrived when the computer should be recognized for its role in the design process from beginning to end?

Can Federal agencies continue to ignore the productivity potential of the computer in design?

The primary objective of GAO's report was to stimulate discussion of the problems disclosed during our study of computer-aided building design. We believe that only through meaningful discussions between the private A/E's and Federal officials will problems such as those discussed in our report will progress be made towards viable solutions. New procedures and policies will not solve the basic problem--a breakdown in communications. Viable solutions are going to take knowledge, understanding, cooperation, and a strong commitment.

Thank you.